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L4: Entry 9 of 11

File: DWPI

Feb 7, 2002

DERWENT-ACC-NO: 1998-065265

DERWENT-WEEK: 200213

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TITLE: High molecular weight polyelectrolyte manufacture - by sulphonating waste poly:styrene resin, optionally containing a halogenated fire retardant, in an alicyclic solvent

INVENTOR: INAGAKI, Y; KUROMIYA, M ; NOGUCHI, T ; WATANABE, H

PATENT-ASSIGNEE:

ASSIGNEE	CODE
SONY CORP	SONY
INAGAKI Y	INAGI
KUROMIYA M	KUROI
NOGUCHI T	NOGUI
WATANABE H	WATAI

PRIORITY-DATA: 1997JP-0001650 (January 8, 1997), 1996JP-0177815 (July 8, 1996), 1996JP-0256982 (September 27, 1996), 1996JP-0256984 (September 27, 1996), 1996JP-0262039 (October 2, 1996), 1996JP-0262041 (October 2, 1996), 1997JP-0000372 (January 6, 1997), 1998AU-0051081 (January 12, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 2002016419 A1	February 7, 2002		000	C08F008/34
EP 818474 A2	January 14, 1998	E	040	C08F008/36
JP 10017616 A	January 20, 1998		006	C08F008/36
JP 10101725 A	April 21, 1998		006	C08F006/06
JP 10101731 A	April 21, 1998		011	C08F008/36
JP 10101733 A	April 21, 1998		010	C08F008/36
JP 10101873 A	April 21, 1998		010	C08L025/18
JP 10195134 A	July 28, 1998		006	C08F008/36
JP 10195234 A	July 28, 1998		005	C08J011/18
KR 98009295 A	April 30, 1998		000	C08F008/36
AU 9851081 A	July 29, 1999		000	C08F008/36
US 6022928 A	February 8, 2000		000	C08F236/10
US 6210581 B1	April 3, 2001		000	B01D003/00
US 6274681 B1	August 14, 2001		000	C08F008/36

DESIGNATED-STATES: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US2002016419A1	July 7, 1997	1997US-0889011	Div ex
US2002016419A1	August 25, 1999	1999US-0382914	
US2002016419A1		US 6022928	Div ex
EP 818474A2	July 4, 1997	1997EP-0111328	
JP 10017616A	July 8, 1996	1996JP-0177815	
JP 10101725A	October 2, 1996	1996JP-0262039	
JP 10101731A	September 27, 1996	1996JP-0256982	
JP 10101733A	September 27, 1996	1996JP-0256984	
JP 10101873A	October 2, 1996	1996JP-0262041	
JP 10195134A	January 8, 1997	1997JP-0001650	
JP 10195234A	January 6, 1997	1997JP-0000372	
KR 98009295A	July 8, 1997	1997KR-0031469	
AU 9851081A	January 12, 1998	1998AU-0051081	
US 6022928A	July 7, 1997	1997US-0889011	
US 6210581B1	July 7, 1997	1997US-0889011	Div ex
US 6210581B1	August 25, 1999	1999US-0383009	
US 6274681B1	July 7, 1997	1997US-0889011	Div ex
US 6274681B1	August 25, 1999	1999US-0382944	
US 6274681B1		US 6022928	Div ex

INT-CL (IPC): B01 D 3/00; B01 D 21/01; B09 B 3/00; C08 F 6/06; C08 F 8/24; C08 F 8/34; C08 F 8/36; C08 F 12/06; C08 F 12/08; C08 F 212/08; C08 F 236/04; C08 F 236/10; C08 J 7/14; C08 J 11/02; C08 J 11/18; C08 J 11/28; C08 K 3/00; C08 K 3/04; C08 K 5/00; C08 L 25/18; H01 B 1/06

ABSTRACTED-PUB-NO: EP 818474A

BASIC-ABSTRACT:

A method of manufacturing a poly-electrolyte comprises sulphonating a polystyrene resin, which is dissolved or dispersed in a solvent comprising an alicyclic compound. Also claimed are: (1) a method of sulphonating aromatic polymers; and (2) a method of disposing of plastic containing halogen flame retardant.

USE - To recycle wasted plastics, e.g. foamed styrene polymers, which may contain halogenated fire retardants. Polyelectrolytes based on styrene/conjugated diene copolymers containing ionic groups are used as a polymer coagulant for disposing of waste water (claimed), and also as a cement additive, a dispersant for inorganic pigments, a conductive agent for an electronic copying machine, an anti-static agent, a scale-preventive agent, a dispersant for emulsion polymerisation and an aqueous glue. Resins of molecular weight 600,000 or higher may be used as a coagulant, an absorbing resin, an ion exchange resin, a chelate resin, a paper strength enhancer, a surface sizing agent for paper or a superplasticiser for coal slurry.

ADVANTAGE - A halogen-free polyelectrolyte is generated from waste polymer without producing large amounts of toxic waste materials. The polyelectrolytes have higher molecular weights, (produced by crosslinking), they may be recovered in a water-free state and water need not be added to the reaction system, and the solvent is recycled. Separation of halogenated fire retardants is efficient as they are not sulphonated and remain in organic solution while the water-soluble polymers may be extracted and separated quickly into an aqueous solvent. Gel formation during sulphonation is prevented when the polystyrene contains rigid conjugated diene units, which prevent sulphone crosslinking. The presence of a radical-scavenging inorganic pigment prevents crosslinking via conjugated diene units. When an alicyclic unsaturated hydrocarbon is present during sulphonation, it is sulphonated to form a surfactant, which improves the ease of dispersion of the product slurry.

ABSTRACTED-PUB-NO:

US 6022928A

EQUIVALENT-ABSTRACTS:

A method of manufacturing a poly-electrolyte comprises sulphonating a polystyrene

resin, which is dissolved or dispersed in a solvent comprising an alicyclic compound. Also claimed are: (1) a method of sulphonating aromatic polymers; and (2) a method of disposing of plastic containing halogen flame retardant.

USE - To recycle wasted plastics, e.g. foamed styrene polymers, which may contain halogenated fire retardants. Polyelectrolytes based on styrene/conjugated diene copolymers containing ionic groups are used as a polymer coagulant for disposing of waste water (claimed), and also as a cement additive, a dispersant for inorganic pigments, a conductive agent for an electronic copying machine, an anti-static agent, a scale-preventive agent, a dispersant for emulsion polymerisation and an aqueous glue. Resins of molecular weight 600,000 or higher may be used as a coagulant, an absorbing resin, an ion exchange resin, a chelate resin, a paper strength enhancer, a surface sizing agent for paper or a superplasticiser for coal slurry.

ADVANTAGE - A halogen-free polyelectrolyte is generated from waste polymer without producing large amounts of toxic waste materials. The polyelectrolytes have higher molecular weights, (produced by crosslinking), they may be recovered in a water-free state and water need not be added to the reaction system, and the solvent is recycled. Separation of halogenated fire retardants is efficient as they are not sulphonated and remain in organic solution while the water-soluble polymers may be extracted and separated quickly into an aqueous solvent. Gel formation during sulphonation is prevented when the polystyrene contains rigid conjugated diene units, which prevent sulphone crosslinking. The presence of a radical-scavenging inorganic pigment prevents crosslinking via conjugated diene units. When an alicyclic unsaturated hydrocarbon is present during sulphonation, it is sulphonated to form a surfactant, which improves the ease of dispersion of the product slurry.

US 6210581B

A method of manufacturing a poly-electrolyte comprises sulphonating a polystyrene resin, which is dissolved or dispersed in a solvent comprising an alicyclic compound. Also claimed are: (1) a method of sulphonating aromatic polymers; and (2) a method of disposing of plastic containing halogen flame retardant.

USE - To recycle wasted plastics, e.g. foamed styrene polymers, which may contain halogenated fire retardants. Polyelectrolytes based on styrene/conjugated diene copolymers containing ionic groups are used as a polymer coagulant for disposing of waste water (claimed), and also as a cement additive, a dispersant for inorganic pigments, a conductive agent for an electronic copying machine, an anti-static agent, a scale-preventive agent, a dispersant for emulsion polymerisation and an aqueous glue. Resins of molecular weight 600,000 or higher may be used as a coagulant, an absorbing resin, an ion exchange resin, a chelate resin, a paper strength enhancer, a surface sizing agent for paper or a superplasticiser for coal slurry.

ADVANTAGE - A halogen-free polyelectrolyte is generated from waste polymer without producing large amounts of toxic waste materials. The polyelectrolytes have higher molecular weights, (produced by crosslinking), they may be recovered in a water-free state and water need not be added to the reaction system, and the solvent is recycled. Separation of halogenated fire retardants is efficient as they are not sulphonated and remain in organic solution while the water-soluble polymers may be extracted and separated quickly into an aqueous solvent. Gel formation during sulphonation is prevented when the polystyrene contains rigid conjugated diene units, which prevent sulphone crosslinking. The presence of a radical-scavenging inorganic pigment prevents crosslinking via conjugated diene units. When an alicyclic unsaturated hydrocarbon is present during sulphonation, it is sulphonated to form a surfactant, which improves the ease of dispersion of the product slurry.

US 6274681B

A method of manufacturing a poly-electrolyte comprises sulphonating a polystyrene resin, which is dissolved or dispersed in a solvent comprising an alicyclic compound. Also claimed are: (1) a method of sulphonating aromatic polymers; and (2) a method of disposing of plastic containing halogen flame retardant.

USE - To recycle wasted plastics, e.g. foamed styrene polymers, which may contain halogenated fire retardants. Polyelectrolytes based on styrene/conjugated diene copolymers containing ionic groups are used as a polymer coagulant for disposing of waste water (claimed), and also as a cement additive, a dispersant for inorganic pigments, a conductive agent for an electronic copying machine, an anti-static agent, a

scale-preventive agent, a dispersant for emulsion polymerisation and an aqueous glue. Resins of molecular weight 600,000 or higher may be used as a coagulant, an absorbing resin, an ion exchange resin, a chelate resin, a paper strength enhancer, a surface sizing agent for paper or a superplasticiser for coal slurry.

ADVANTAGE - A halogen-free polyelectrolyte is generated from waste polymer without producing large amounts of toxic waste materials. The polyelectrolytes have higher molecular weights, (produced by crosslinking), they may be recovered in a water-free state and water need not be added to the reaction system, and the solvent is recycled. Separation of halogenated fire retardants is efficient as they are not sulphonated and remain in organic solution while the water-soluble polymers may be extracted and separated quickly into an aqueous solvent. Gel formation during sulphonation is prevented when the polystyrene contains rigid conjugated diene units, which prevent sulphone crosslinking. The presence of a radical-scavenging inorganic pigment prevents crosslinking via conjugated diene units. When an alicyclic unsaturated hydrocarbon is present during sulphonation, it is sulphonated to form a surfactant, which improves the ease of dispersion of the product slurry.

US2002016419A

A method of manufacturing a poly-electrolyte comprises sulphonating a polystyrene resin, which is dissolved or dispersed in a solvent comprising an alicyclic compound. Also claimed are: (1) a method of sulphonating aromatic polymers; and (2) a method of disposing of plastic containing halogen flame retardant.

USE - To recycle wasted plastics, e.g. foamed styrene polymers, which may contain halogenated fire retardants. Polyelectrolytes based on styrene/conjugated diene copolymers containing ionic groups are used as a polymer coagulant for disposing of waste water (claimed), and also as a cement additive, a dispersant for inorganic pigments, a conductive agent for an electronic copying machine, an anti-static agent, a scale-preventive agent, a dispersant for emulsion polymerisation and an aqueous glue. Resins of molecular weight 600,000 or higher may be used as a coagulant, an absorbing resin, an ion exchange resin, a chelate resin, a paper strength enhancer, a surface sizing agent for paper or a superplasticiser for coal slurry.

ADVANTAGE - A halogen-free polyelectrolyte is generated from waste polymer without producing large amounts of toxic waste materials. The polyelectrolytes have higher molecular weights, (produced by crosslinking), they may be recovered in a water-free state and water need not be added to the reaction system, and the solvent is recycled. Separation of halogenated fire retardants is efficient as they are not sulphonated and remain in organic solution while the water-soluble polymers may be extracted and separated quickly into an aqueous solvent. Gel formation during sulphonation is prevented when the polystyrene contains rigid conjugated diene units, which prevent sulphone crosslinking. The presence of a radical-scavenging inorganic pigment prevents crosslinking via conjugated diene units. When an alicyclic unsaturated hydrocarbon is present during sulphonation, it is sulphonated to form a surfactant, which improves the ease of dispersion of the product slurry.

CHOSEN-DRAWING: Dwg.0/3

TITLE-TERMS: HIGH MOLECULAR WEIGHT POLYELECTROLYTE MANUFACTURE SULPHONATED WASTE POLY STYRENE RESIN OPTION CONTAIN HALOGENATED FIRE RETARD ALICYCLIC SOLVENT

DERWENT-CLASS: A13 A35 A91 D15 F09 G02 G03 G08 H09 L02 P43 S06 X12 X25

CPI-CODES: A04-C02D; A08-F01; A08-S02; A10-E12A; A11-C03; A11-C07; A12-M02; D04-A01B; F05-A06B; F05-A06C; G02-A05C; H09-F02; L02-C08;

EPI-CODES: S06-A01X; X12-D01C; X25-S;

UNLINKED-DERWENT-REGISTRY-NUMBERS: 0424U; 0913U ; 1514U ; 1675U

ENHANCED-POLYMER-INDEXING:

Polymer Index [1.1] 018 ; R00708 G0102 G0022 D01 D02 D12 D10 D19 D18 D31 D51 D53 D58 D76 D88 ; L9999 L2391 ; L9999 L2799 ; M9999 M2799 ; S9999 S1014*R ; S9999 S1627 S1605 ; S9999 S1309*R ; L9999 L2391 ; L9999 L2073 ; M9999 M2073 ; M9999 M2460 ; M9999 M2415 ; M9999 M2700 ; A999 A782 ; A999 A624*R A566 ; A999 A646 A624 A566 ; A999 A635 A624 A566 ; H0000 ; H0011*R ; P1741 ; P1752 Polymer Index [1.2] 018 ; ND01 ; ND07 ; ND03 ; Q9999

Q8764 ; N9999 N6906 ; N9999 N6655*R ; N9999 N5889*R ; N9999 N5947 ; Q9999 Q9110 ; Q9999 Q6951*R Q6939 ; Q9999 Q8753 ; N9999 N6575 ; Q9999 Q7001 Q6995 ; Q9999 Q8617*R Q8606 ; B9999 B3269 B3190 ; B9999 B3305 B3292 B3190 ; Q9999 Q6962 Q6951 Q6939 ; Q9999 Q6644*R ; B9999 B5094 B4977 B4740 ; Q9999 Q9370 ; Q9999 Q7772 ; Q9999 Q7114*R ; Q9999 Q7216 Q7114 ; Q9999 Q8093*R ; K9563 K9483 ; K9676*R ; K9483*R ; K9712 K9676 ; B9999 B3521*R B3510 B3372 ; N9999 N6928 ; N9999 N5890 N5889 ; N9999 N6780*R N6655 ; N9999 N6860 N6655 ; N9999 N6735*R N6655 ; N9999 N6177*R ; B9999 B4535 ; B9999 B3690*R Polymer Index [1.3] 018 ; S* 6A P* 5A Cl 7A ; H0157 Polymer Index [1.4] 018 ; 7A*R Br 7A ; A999 A248*R ; N9999 N7283 ; K9950 Polymer Index [1.5] 018 ; D01 D13*R D02 ; R00913 D01 D02 D14 D13 D31 D50 D76 D86 ; D01 D13*R D14 D13 D11 D10 D12 D31 D76 D54 D51 D57 D58 D59 D90 D02 ; D01 D10*R D69 7A*R ; N* 5A O* 6A ; A999 A475 Polymer Index [1.6] 018 ; D01 D11 D10 D50 D63 D60 D89 F27 F26 F37 F35 F89 F41 ; D01 D11 D10 D23 D22 D31 D75 D42 D53 D51 D59 D86 F29 F26 F43 Na 1A D61*R O* 6A ; R00035 D01 D11 D10 D23 D22 D31 D42 D51 D53 D59 D63 D75 D86 F29 F26 F43 ; D01 D18*R F30*R ; P* 5A S* 6A ; A999 A486*R ; A999 A497 A486 Polymer Index [1.7] 018 ; D01 D18*R D19 D18 D76 F30*R ; D01 D19 D18 D76 F23 ; G2540*R D01 D22 D45 D77 F11 N* 5A ; D01 F07*R ; D01 D26 D11 D10 D51*R D58 F12 O* 6A ; D01 D19 D18 D76 F30*R O* 6A ; E10 E00 D01 D19 D18 D32 D76 D50 D93 O* 6A N* 5A ; A999 A486*R ; A999 A544 A486 Polymer Index [2.1] 018 ; R00708 G0102 G0022 D01 D02 D12 D10 D19 D18 D31 D51 D53 D58 D76 D88 ; G0817*R D01 D51 D54 D56 ; L9999 L2391 ; L9999 L2799 ; M9999 M2799 ; S9999 S1014*R ; S9999 S1627 S1605 ; S9999 S1309*R ; L9999 L2391 ; L9999 L2073 ; M9999 M2073 ; M9999 M2460 ; M9999 M2415 ; M9999 M2700 ; A999 A782 ; A999 A624*R A566 ; A999 A646 A624 A566 ; A999 A635 A624 A566 ; H0022 H0011 ; H0033 H0011 ; P1741 Polymer Index [2.2] 018 ; ND01 ; ND07 ; ND03 ; Q9999 Q8764 ; N9999 N6906 ; N9999 N6655*R ; N9999 N5889*R ; N9999 N5947 ; Q9999 Q9110 ; Q9999 Q6951*R Q6939 ; Q9999 Q8753 ; N9999 N6575 ; Q9999 Q7001 Q6995 ; Q9999 Q8617*R Q8606 ; B9999 B3305 B3292 B3190 ; Q9999 Q6962 Q6951 Q6939 ; Q9999 Q6644*R ; B9999 B5094 B4977 B4740 ; Q9999 Q9370 ; Q9999 Q7772 ; Q9999 Q7114*R ; Q9999 Q7216 Q7114 ; Q9999 Q8093*R ; K9563 K9483 ; K9676*R ; K9483*R ; K9712 K9676 ; B9999 B3521*R B3510 B3372 ; N9999 N6928 ; N9999 N5890 N5889 ; N9999 N6780*R N6655 ; N9999 N6860 N6655 ; N9999 N6735*R N6655 ; N9999 N6177*R ; B9999 B4535 ; B9999 B3690*R Polymer Index [2.3] 018 ; S* 6A P* 5A Cl 7A ; H0157 Polymer Index [2.4] 018 ; 7A*R Br 7A ; A999 A248*R ; N9999 N7283 ; K9950 Polymer Index [2.5] 018 ; D00 ; R01966 D00 F20 Ti 4B Tr O* 6A ; R05085 D00 D09 C* 4A ; A999 A180 Polymer Index [2.6] 018 ; D01 D13*R D02 ; R00913 D01 D02 D14 D13 D31 D50 D76 D86 ; D01 D13*R D14 D13 D11 D10 D12 D31 D76 D54 D51 D57 D58 D59 D90 D02 ; D01 D10*R D69 7A*R ; N* 5A O* 6A ; A999 A475 Polymer Index [2.7] 018 ; D01 D11 D10 D50 D63 D60 D89 F27 F26 F37 F35 F89 F41 ; D01 D11 D10 D23 D22 D31 D75 D42 D53 D51 D59 D86 F29 F26 F43 Na 1A D61*R O* 6A ; R00035 D01 D11 D10 D23 D22 D31 D42 D51 D53 D59 D63 D75 D86 F29 F26 F43 ; D01 D18*R F30*R ; P* 5A S* 6A ; A999 A486*R ; A999 A497 A486 Polymer Index [2.8] 018 ; D01 D18*R D19 D18 D76 F30*R ; D01 D19 D18 D76 F23 ; G2540*R D01 D22 D45 D77 F11 N* 5A ; D01 F07*R ; D01 D26 D11 D10 D51*R D58 F12 O* 6A ; D01 D19 D18 D76 F30*R O* 6A ; E10 E00 D01 D19 D18 D32 D76 D50 D93 O* 6A N* 5A ; A999 A486*R ; A999 A544 A486 Polymer Index [3.1] 018 ; R00708 G0102 G0022 D01 D02 D12 D10 D19 D18 D31 D51 D53 D58 D76 D88 ; L9999 L2391 ; L9999 L2799 ; M9999 M2799 ; S9999 S1014*R ; S9999 S1627 S1605 ; S9999 S1309*R ; L9999 L2391 ; L9999 L2073 ; M9999 M2073 ; M9999 M2460 ; M9999 M2415 ; M9999 M2700 ; A999 A782 ; A999 A624*R A566 ; A999 A646 A624 A566 ; A999 A635 A624 A566 ; H0000 ; L9999 L2379*R ; L9999 L2415 ; M9999 M2379*R ; P1741 ; P1752 Polymer Index [3.2] 018 ; ND01 ; ND07 ; ND03 ; Q9999 Q8764 ; N9999 N6906 ; N9999 N6655*R ; N9999 N5889*R ; N9999 N5947 ; Q9999 Q9110 ; Q9999 Q6951*R Q6939 ; Q9999 Q8753 ; N9999 N6575 ; Q9999 Q7001 Q6995 ; Q9999 Q8617*R Q8606 ; B9999 B3269 B3190 ; B9999 B3305 B3292 B3190 ; Q9999 Q6962 Q6951 Q6939 ; Q9999 Q6644*R ; B9999 B5094 B4977 B4740 ; Q9999 Q9370 ; Q9999 Q7772 ; Q9999 Q7114*R ; Q9999 Q7216 Q7114 ; Q9999 Q8093*R ; K9563 K9483 ; K9676*R ; K9483*R ; K9712 K9676 ; B9999 B3521*R B3510 B3372 ; N9999 N6928 ; N9999 N5890 N5889 ; N9999 N6780*R N6655 ; N9999 N6860 N6655 ; N9999 N6735*R N6655 ; N9999 N6177*R ; B9999 B4535 ; B9999 B3690*R Polymer Index [3.3] 018 ; S* 6A P* 5A Cl 7A ; H0157 Polymer Index [3.4] 018 ; D00 D65 H* O* 6A S* ; H0226 Polymer Index [3.5] 018 ; R01514 D00 D67 F21 H* O* 6A Na 1A ; H0226 Polymer Index [3.6] 018 ; Na 1A ; H0157 Polymer Index [3.7] 018 ; D01 D13*R D02 ; R00913 D01 D02 D14 D13 D31 D50 D76 D86 ; D01 D13*R D14 D13 D11 D10 D12 D31 D76 D54 D51 D57 D58 D59 D90 D02 ; D01 D10*R D69 7A*R ; N* 5A O* 6A ; A999 A475 Polymer Index [3.8] 018 ; D01 D18*R F30*R ; P* 5A S* 6A ; D01 D11 D10 D23 D22 D31 D75 D42 D53 D51 D59 D86 F29 F26 F43 Na 1A D61*R O* 6A ; R00035 D01 D11 D10 D23 D22 D31 D42 D51 D53 D59 D63 D75 D86 F29 F26 F43 ; D01 D11 D10 D50 D63 D60 D89 F27 F26 F37 F35 F89 F41 ; A999 A486*R ; A999 A497 A486 Polymer Index [3.9] 018 ; D01 D18*R D19 D18 D76 F30*R ; D01 D19 D18 D76 F23 ; G2540*R D01 D22 D45 D77 F11 N* 5A ; D01 F07*R ; D01 D26 D11 D10 D51*R D58 F12 O* 6A ; D01 D19 D18 D76 F30*R O* 6A ; E10 E00 D01 D19 D18 D32 D76 D50 D93 O* 6A N* 5A ; A999 A486*R ; A999 A544 A486 Polymer Index [4.1] 018 ; P0000 ; L9999 L2506*R ; L9999 L2551 L2506 Polymer Index [4.2] 018 ; ND00 ; ND03 ; ND07 Polymer Index [4.3] 018 ; A999 A624*R A566 ; A999 A635 A624 A566 ; A999 A646 A624 A566 ; A999 A759

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1998-022723

Non-CPI Secondary Accession Numbers: N1998-051320

WEST

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L4: Entry 10 of 11

File: DWPI

Jul 17, 2001

DERWENT-ACC-NO: 1998-065229

DERWENT-WEEK: 200142

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TITLE: Polymer electrolyte and aggregating agent used to treat waste water - comprises an inorganic pigment containing a sulphonated polystyrene resin soluble to water.

INVENTOR: INAGAKI, Y; KUROMIYA, M ; NOGUCHI, T ; WATANABE, H

PATENT-ASSIGNEE:

ASSIGNEE

CODE

SONY CORP

SONY

PRIORITY-DATA: 1996JP-0256383 (September 27, 1996), 1996JP-0177813 (July 8, 1996), 1996JP-0177814 (July 8, 1996), 1998AU-0051078 (January 12, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 6261461 B1	July 17, 2001		000	C02F001/56
EP 818420 A1	January 14, 1998	E	015	C02F001/56
JP 10015560 A	January 20, 1998		006	C02F001/56
JP 10017741 A	January 20, 1998		006	C08L025/04
JP 10101730 A	April 21, 1998		007	C08F008/36
KR 98009136 A	April 30, 1998		000	C02F001/56
AU 9851078 A	July 29, 1999		000	C08L025/18
US 6086783 A	July 11, 2000		000	C02F005/10
US 6190575 B1	February 20, 2001		000	C02F005/12

DESIGNATED-STATES: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
US 6261461B1	July 7, 1997	1997US-0889181	Div ex
US 6261461B1	April 30, 1998	1998US-0070354	Div ex
US 6261461B1	November 22, 1999	1999US-0444808	
US 6261461B1		US 6086783	Div ex
EP 818420A1	July 7, 1997	1997EP-0111476	
JP 10015560A	July 8, 1996	1996JP-0177814	
JP 10017741A	July 8, 1996	1996JP-0177813	
JP 10101730A	September 27, 1996	1996JP-0256383	
KR 98009136A	July 8, 1997	1997KR-0031468	
AU 9851078A	January 12, 1998	1998AU-0051078	
US 6086783A	July 7, 1997	1997US-0889181	
US 6190575B1	July 7, 1997	1997US-0889181	Div ex
US 6190575B1	April 30, 1998	1998US-0070354	Cont of
US 6190575B1	September 10, 1999	1999US-0393523	
US 6190575B1		US 6086783	Div ex

INT-CL (IPC): B01 D 21/01; C02 F 1/52; C02 F 1/54; C02 F 1/56; C02 F 5/10; C02 F 5/12;
C08 F 8/36; C08 K 3/04; C08 K 3/22; C08 L 25/04; C08 L 25/18; C08 L 33/08; C08 L 33/10;
C08 L 33/26; C08 L 101/00; C09 K 3/00; H01 B 1/06

RELATED-ACC-NO: 2000-320144;2000-378146

ABSTRACTED-PUB-NO: EP 818420A

BASIC-ABSTRACT:

A polymer electrolyte containing an inorganic pigment and sulphonated polystyrene resin, is soluble in water. Also, treatment of waste water by adding a polymer aggregating agent containing a polymer compound and carbon black, to waste water. The suspended matter is aggregated and removed by filtration.

USE - To treat waste water.

ADVANTAGE - Effectively purifies waste water.

ABSTRACTED-PUB-NO:

US 6086783A

EQUIVALENT-ABSTRACTS:

A polymer electrolyte containing an inorganic pigment and sulphonated polystyrene resin, is soluble in water. Also, treatment of waste water by adding a polymer aggregating agent containing a polymer compound and carbon black, to waste water. The suspended matter is aggregated and removed by filtration.

USE - To treat waste water.

ADVANTAGE - Effectively purifies waste water.

US 6190575B

A polymer electrolyte containing an inorganic pigment and sulphonated polystyrene resin, is soluble in water. Also, treatment of waste water by adding a polymer aggregating agent containing a polymer compound and carbon black, to waste water. The suspended matter is aggregated and removed by filtration.

USE - To treat waste water.

ADVANTAGE - Effectively purifies waste water.

US 6261461B

A polymer electrolyte containing an inorganic pigment and sulphonated polystyrene resin, is soluble in water. Also, treatment of waste water by adding a polymer aggregating agent containing a polymer compound and carbon black, to waste water. The suspended matter is aggregated and removed by filtration.

USE - To treat waste water.

ADVANTAGE - Effectively purifies waste water.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: POLYMER ELECTROLYTIC AGGREGATE AGENT TREAT WASTE WATER COMPRISE INORGANIC PIGMENT CONTAIN SULPHONATED POLYSTYRENE RESIN SOLUBLE WATER

DERWENT-CLASS: A13 A97 D15

CPI-CODES: A10-E12A; A12-W11E; A12-W11J; D04-A01F;

UNLINKED-DERWENT-REGISTRY-NUMBERS: 1669U; 1740P ; 1966U

ENHANCED-POLYMER-INDEXING:

Polymer Index [1.1] 018 ; R00708 G0102 G0022 D01 D02 D12 D10 D19 D18 D31 D51 D53 D58
D76 D88 ; H0000 ; H0011*R ; S9999 S1058 S1014 ; S9999 S1616 S1605 ; L9999 L2391 ; L9999
L2799 ; M9999 M2799 ; P1741 ; P1752 Polymer Index [1.2] 018 ; ND01 ; ND07 ; Q9999
Q6951*R Q6939 ; Q9999 Q8753 ; N9999 N6804*R N6655 Polymer Index [1.3] 018 ; B9999 B5094
B4977 B4740 ; N9999 N5890 N5889 ; N9999 N6177*R ; N9999 N6860 N6655 ; Q9999 Q8764 ;
B9999 B3521*R B3510 B3372 Polymer Index [1.4] 018 ; R00811 G1989 G1978 D01 D11 D10 D50
D69 D82 C1 7A ; R01740 G2335 D00 F20 H* O* 6A ; A999 A475 Polymer Index [2.1] 018 ;
R00444 G0453 G0260 G0022 D01 D12 D10 D26 D51 D53 D58 D83 F70 F93 ; H0000 ; H0011*R ;
P0088 Polymer Index [2.2] 018 ; ND01 ; ND07 ; Q9999 Q6951*R Q6939 ; Q9999 Q8753 ; N9999
N6804*R N6655 Polymer Index [2.3] 018 ; K9325 ; K9632 K9621 ; Q9999 Q9110 Polymer Index
[3.1] 018 ; P0000 Polymer Index [3.2] 018 ; ND01 ; ND07 ; Q9999 Q6951*R Q6939 ; Q9999
Q8753 ; N9999 N6804*R N6655 Polymer Index [3.3] 018 ; K9643 K9621 ; Q9999 Q9110

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CPI Secondary Accession Numbers: C1998-022687